



**WARN INDUSTRIES, INC.
INSTALLATION INSTRUCTIONS FOR THE**

**WRANGLER, CHEROKEE AND COMANCHE, FRONT AXLE
WHEEL HUB CONVERSION KIT**

***THIS KIT IS NOT INTENDED FOR VEHICLES WITH ABS AND WILL
CHANGE BOLT PATTERN TO 5 ON 5.5***

****Use 1980 - 1986 CJ7 front rotor (Bendix P/N 141257). Before starting, be sure to
machine rotor O.D. to 11" and "hat" O.D. to 7". See Figure 1 on page 1****

As you read these instructions, you will see **NOTES**, **CAUTIONS** and **WARNINGS**. Each message has a specific purpose. **NOTES** are additional information to help you complete a procedure. **CAUTIONS** are safety messages that indicate a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. A **CAUTION** may also be used to alert against unsafe practice. **WARNINGS** are safety messages that indicate a potentially hazardous situation, which, if not avoided could result in serious injury. **CAUTIONS** and **WARNINGS** identify the hazard, indicate how to avoid the hazard, and advise of the probable consequence of not avoiding the hazard. **PLEASE WORK SAFELY!**

**WARN INDUSTRIES, INC. □ 12900 SE CAPPS ROAD □ CLACKAMAS, OR 97015-8903
(503) 722-1200 □ CUSTOMER SERVICE LINE 1-888-722-6730 □ FAX (503) 722-3051**

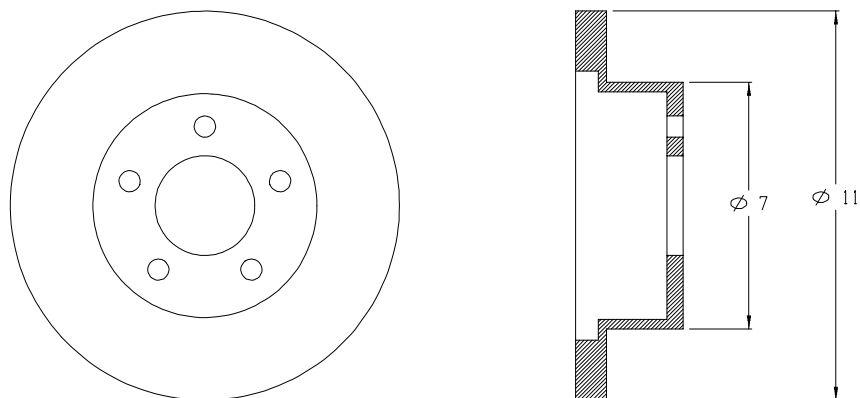
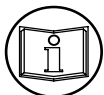


Figure 1. CJ Rotor Diagram

SAFETY PRECAUTIONS



CAUTION



READ INSTRUCTIONS THOROUGHLY BEFORE BEGINNING INSTALLATION.

This sheet provides guidelines to install the WARN Front Wheel Hub Conversion Kit (Figure 3). There are NOTES, CAUTIONS, and WARNINGS which should be followed during installation to avoid possibility of personal injury or damage to the vehicle. During installation, standard safety precautions and equipment should be used where appropriate. Because the skill and experience of the installer and the tools used can vary widely, it is impossible to anticipate all conditions under which this installation is made or to provide cautions for all possible hazards. If your installation varies from the instruction, you must be completely satisfied that your safety or the operation of the vehicle will not be compromised.

NOTE: If you have questions concerning the installation of the Warn Front Axle Wheel Hub Conversion Kit, call our toll-free number (1-888-722-6730) for assistance.

APPLICATIONS

The Warn Front Axle Wheel Hub Conversion Kit is designed to fit Wrangler, Cherokee and Comanche Jeeps.

FEATURES

Eliminates steering drag caused by front locking differentials in YJ's, TJ's and XJ's

Exclusive high strength alloy locking hubs to fit new 30 spline outer axle.

Serviceable bearings and seals.

TOOLS AND MATERIALS NEEDED

Jack	1/2" Drive Socket Set
Jack-stands	4-Lug Socket for Dana 44 (Fig 2)*
Torque Wrench	Safety Goggles
13mm 12 Pt. 1/2" Drive Socket	Shop Rags
*Snap-on PN S8695C or similar	

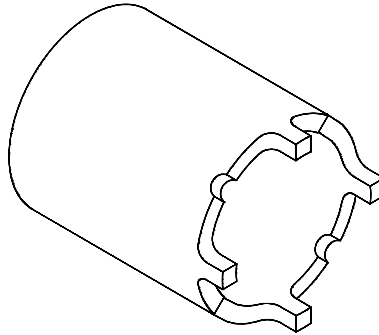


Figure 2. 4-Lug socket.

PARTS LIST (included in kit) (Refer to Figure 3 for Item #)

Item #	Part Name (Qty)	Other P/N
1	Hublocks (2)	60165
2	Axle Retainer Ring (2)	†42768
3	Spacer (2)	38364
5	Spindle Nut Kit (2)	60933
6	Outer Bearing Cone (2)	*LM501349
7	Outer Bearing Cup (2)	*LM501310
8	Wheel Hub (2)	36990
9	Inner Bearing Cup (2)	*LM102910
10	Inner Bearing Cone (2)	*LM102949
11	Grease Seal (2)	**CR22353
12	Wheel Studs (10)	‡142092
13	Spindle (2)	62569
14	Needle Bearing (2)	†550759
15	Spindle Seal (2)	†36361
16	Thrust Washer (2)	†38106
17	V-Ring Spindle Seal (2)	†38128
18	Seal Shield (2)	†36364
19	Outer Axle (2) Using 297X U-Joint	38248
20	U-Joint	†5-297X

* AFBMA bearing P/N ** CR Services P/N *** Russell P/N † Spicer P/N ‡ Bendix P/N

NOTE - Item numbers 14-17 replacements can be purchased in kit form, from Spicer using the following part number 706527X. (2 Required)

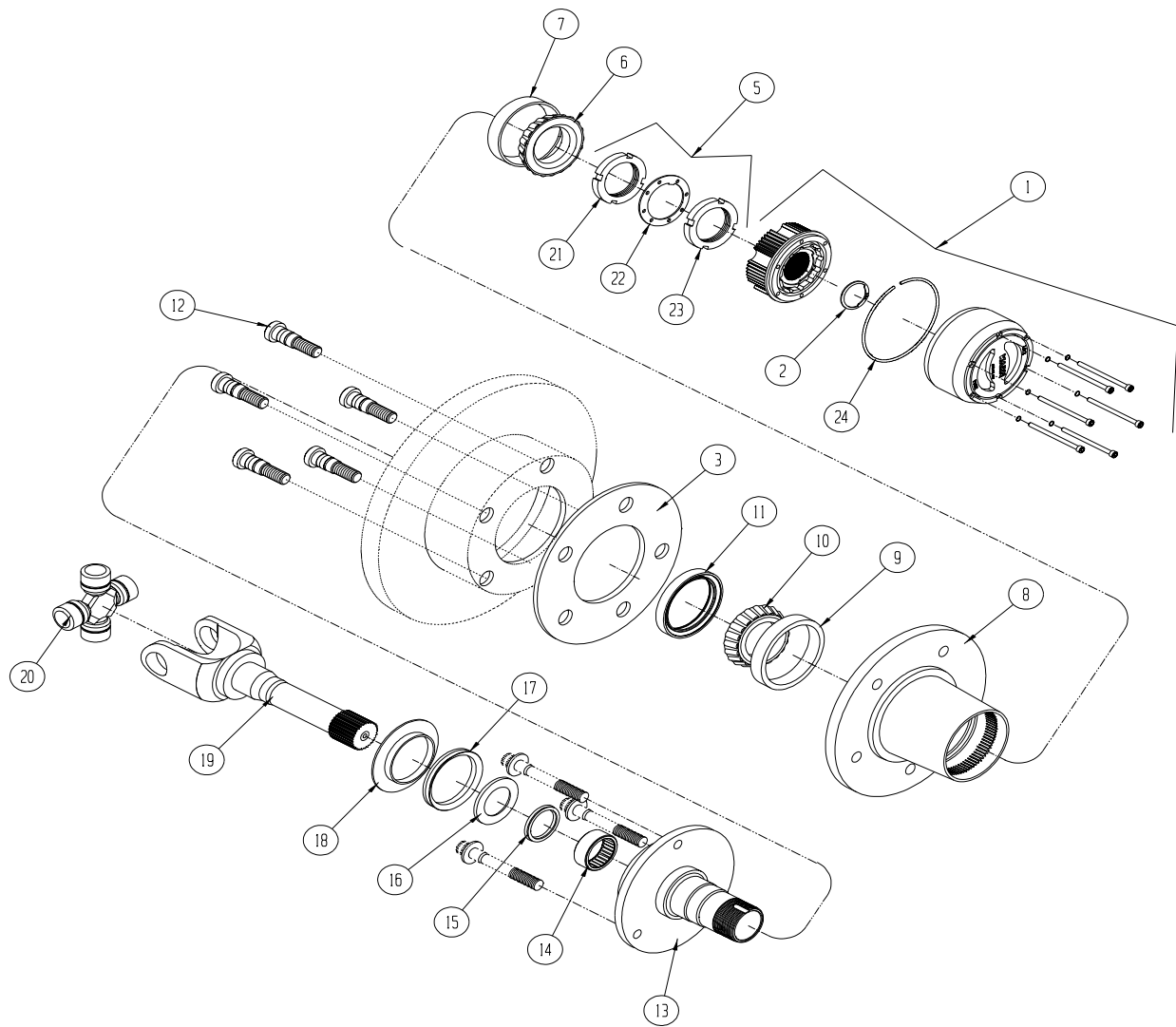


Figure 3. Front axle wheel hub conversion kit. Parts not included in kit are drawn with dashed lines



WARNING



Raised vehicles can cause falling particles. **WEAR SAFETY GOGGLES.** Falling particles can cause eye injury.



Improperly supported vehicles can fall. **DO NOT USE A JACK TO SUPPORT THE VEHICLE. USE JACK STANDS IN PAIRS TO SUPPORT THE VEHICLE. USE JACKS OR JACK STANDS ONLY ON A HARD, STABLE, AND LEVEL SURFACE. DO NOT EXCEED THE RATED CAPACITY OF A JACK OR JACK STANDS.** An unstable vehicle can fall and cause a crushing injury.

A rolling vehicle can cause jackstands to tip. Before working under vehicle, **VERIFY THAT THE PARKING BRAKE IS SET, THE TRANSMISSION IS IN PARK (AUTOMATIC) OR REVERSE (MANUAL) AND THE REAR WHEELS ARE CHOCKED.** A tipping jackstand or vehicle can cause injury.

DISASSEMBLY

NOTE: The following instructions are for doing one side of the axle. Both sides of the axle can be done simultaneously.

1. Start the engine. Shift the transfer case into one of the 4WD modes. Leave transfer case in the position throughout entire wheel hub conversion installation. This will aid installation of the axle shafts
2. Turn the ignition key OFF. Put transmission in Park (automatic) or Reverse (manual).
3. Set the parking brake and chock the rear wheels.
4. Raise the front end and support it on 2 jack stands.
5. Remove the tire and wheel assembly.



WARNING

Brake pads may contain asbestos. **NEVER CLEAN BRAKE SURFACES WITH COMPRESSED AIR. AVOID INHALING ANY DUST FROM THE BRAKE SURFACE. USE A COMMERCIALLY AVAILABLE BRAKE CLEANING FLUID.** Asbestos has been found to be a cancer causing agent.

6. Remove the caliper and hang it from the frame or suspension with a piece of wire, being careful not to strain the brake hose.
7. Remove 3 bolts retaining the original hub (using 13 mm 12 pt socket) and bearing assembly. Do not disassemble the bearing assembly from axle shaft. See Figure 4. (For location reference only)

NOTE: Refer to your authorized Jeep Technical Service Manual for removal instructions.

8. Remove axle shafts, brake shield, hub and bearing pack. See Figure 4.
(For location reference only)

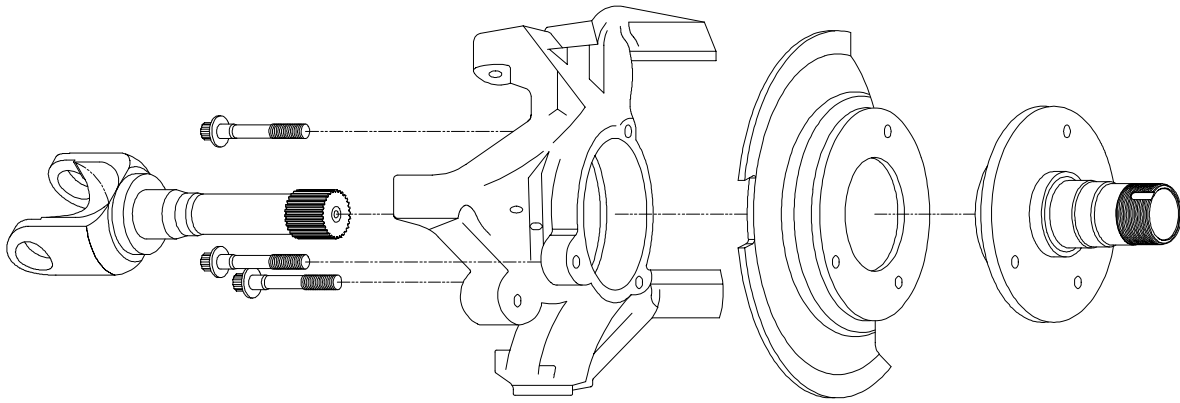


Figure 4. Exploded knuckle

NOTE: Be careful not to damage inner differential seal.



WARNING



Press parts under stress can break. **WEAR SAFETY GOGGLES.** Broken parts can cause eye injury.

9. Separate the original inner shaft from the outer shaft by removing the u-joint.

NOTE: Refer to your authorized Jeep Technical Service Manual for removal instructions.

10. Install shield to outer axle shaft (both components supplied with kit).
See Figure 5.

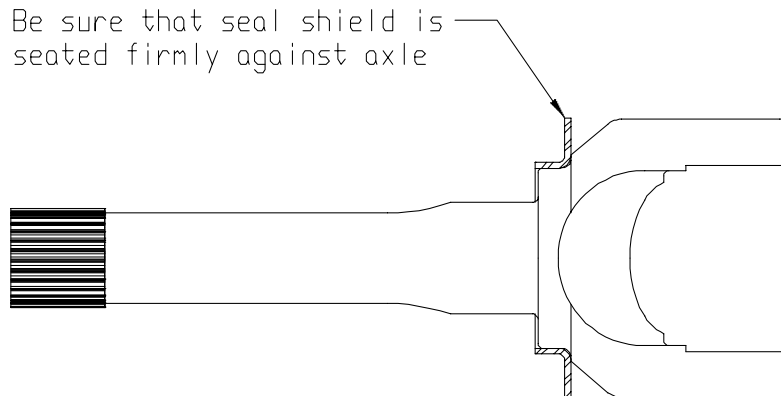


Figure 5. Stub axle and seal shield.

11. Install u-joint and outer axle shaft (both supplied in kit) to inner axle shaft.
12. While supporting axle assembly to keep from pushing loose material into differential, slide axle assembly into differential being careful not to damage the inner seal.

13. Place thrust washer I.D. chamfer side towards Yoke. See Figure 3, Flag 16.
14. Place V-seal (thick side towards yoke) on axle shaft. See Figure 3, Flag 17.

NOTE: Put grease in counter bore. Be sure that factory installed spindle seal is placed cup side, facing away from needle bearing. This seal is held in by grease only. See figure 3, Flag 15.

15. Clean mating surfaces between steering knuckle and spindle.
16. Place dust shield on to the steering knuckle.
17. Place spindle over outer axle shaft and bolt on to steering knuckle. Torque 3 bolts to 75 ft. lbs. See Figure 4.

ROTOR TO WHEEL HUB INSTALLATION

1. Place spacer and the brake rotor on the wheel hub aligning the holes. See Figure 6.
2. Press the studs into the holes.

NOTE: Make sure head of stud firmly contacts the brake rotor flange

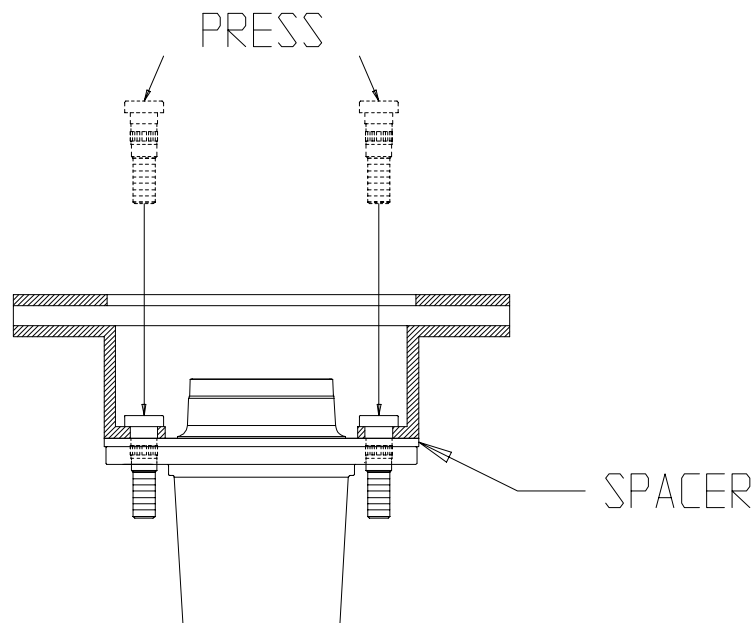


Figure 6. Stud press diagram

BEARING INSTALLATION

1. Inspect inside of wheel hub and clean if necessary. (See Figure 3, Flag 8.)
2. Pack wheel hub inner diameter (Figure 7, Flag 4) with wheel bearing grease.
3. Apply a coating of grease to the inside diameter of the bearing cups.

4. Pack the inner wheel bearing cone (LM102949) with wheel bearing grease. Use a wheel bearing packer if possible. To pack by hand, place a large amount of grease in the palm of your hand and force the edge of the bearing into the grease so that it fills with grease. Continue until the whole bearing is coated with grease. Apply additional grease with fingers.
5. Install packed bearing into cup on inboard side of wheel hub. (Figure 7, Flag 1)
6. Apply additional grease around back side of installed bearing. (Figure 7, Flag 2)
7. Fill large radial seal cavity with grease. Press large radial seal into seat of inboard side of wheel hub. (Figure 7, Flag 2) Seal may protrude slightly from wheel hub.

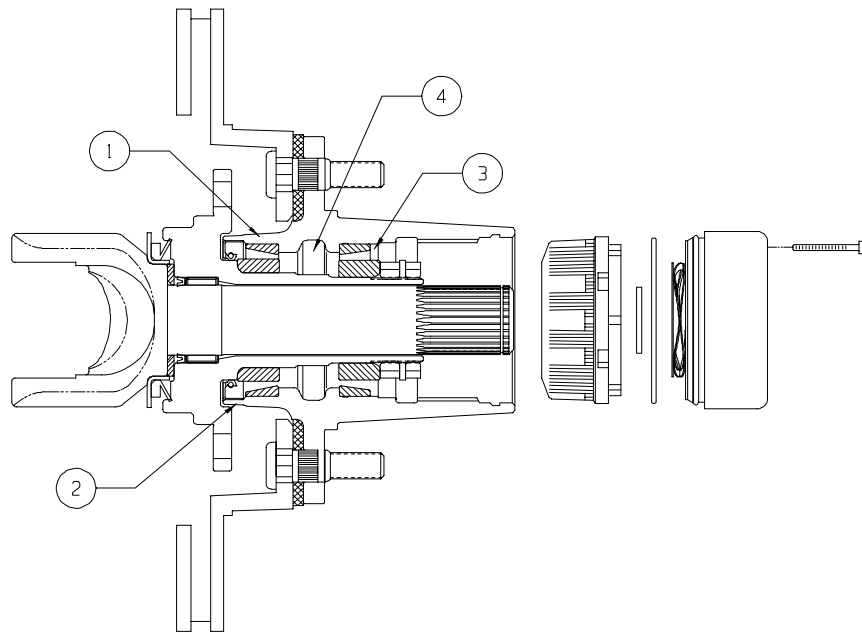


Figure 7. Bearing and seal installation.

8. Pack outer bearing (LM501349) with grease using the same technique described in step 4.
9. Install outer bearing (Figure 7, Flag 3).

WHEEL HUB INSTALLATION

1. Apply a light coating of grease to the shank of the spindle.
2. Slide wheel hub assembly onto spindle.

NOTE: Keep wheel hub aligned with spindle so bearings don't wedge on spindle.

3. Thread inner nut (See Figure 3, Flag 21) on to spindle.

- Using hub spindle nut socket (See Figure 2) and torque wrench torque nut to 50 ft-lb. Rotate wheel back and forth while tightening the nut. This helps seat the bearings.



WARNING



Excess force can cause tool slippage or breakage and damage to the nut. **DO NOT OVERTORQUE NUTS.** Broken or slipping wrenches can cause eye or other injury.

- Loosen the nut $\frac{1}{4}$ turn (90 degrees).
- Install lock washer on spindle. Use care to align the pin in the inner nut with the hole in the washer. The washer may be flipped if the hole does not align with the pin.
- See Figure 3, Flag 22.
- Thread outer nut on spindle. See Figure 3, Flag 23.
- Torque outer nut to 125 to 150 ft-lb.

NOTE: All free clearance should be removed from the bearings. If not, repeat procedure.

HUBLOCK INSTALLATION

NOTE: Do not add grease to hublocks.

- Separate body and cap assembly. (Figure 3, Flag 1)
- Push hublock body into wheel hub (Figure 3, Flag 8) so lock ring groove in wheel hub is visible.
- Install large lock ring (Figure 3, Flag 24) into wheel hub groove.

NOTE: Ensure that large lock ring is fully seated lock ring can be removed with Plews O-ring pick (P/N 72-017).

NOTE: Repeat all steps for other side of vehicle.

- Using snap ring pliers, install axle retaining ring. (Figure 3, Flag 2)

NOTE: If necessary a pry bar can be inserted into knuckle (u-joints) to hold axle shaft out board while installing the axle retaining ring.

- Grease o-ring on cap.

NOTE: Dial hub lock cap (Figure 3, Flag 1) to FREE position

- Place hub lock cap on body.

7. Install small o-rings on cap screws.
8. Align holes on cap using one socket head cap screw (Figure 3, Flag 1) as pilot.
9. Insert remaining 5 cap screws. Torque to 25-30 **INCH**-lb.
10. Re-install brake caliper. Refer to Jeep service manual.

HUBLOCK CHECK

1. To check for proper engagement, dial both hub-locks to LOCK. Spin one axle.

NOTE: For an open differential, the opposite axle will reverse rotate if the hub-locks are engaging properly. For a locking differential, the drive line and opposite axle will turn if the hub-locks are engaging properly.

2. To check for proper disengagement, dial one hub-lock to FREE and spin the same axle.

NOTE: For a locking differential, if the drive line does not turn and there are no ratcheting sounds, the hub-lock is disengaging properly. For an open differential, if the opposite axle does not turn and there are no ratcheting sounds, the hub-lock is disengaging properly.

3. Repeat steps 1 and 2 for opposite hub-lock.
4. Install wheels and tires. Snug lug nuts.

WARNING: Check lug nuts for proper amount of thread engagement on the wheel stud. The minimum amount of engagement is equal to the diameter of the stud. If the minimum amount of engagement is not achieved then it is possible to use special AMERICAN RACING Lug nuts P/N 831142 (1/2-20 Acorn Shank) to help achieve the minimum amount required. It is the installers responsibility to check lug nut compatibility and engagement.

5. Lift vehicle. Remove jack-stands. Lower vehicle to ground.
6. **Torque** lug nuts per **manufacturer's** specifications.

WARNING: After 50 miles, re-torque lug nuts to manufactures specifications. Always re-torque lug nuts after hard trail use.

OPTIONAL – Permanent Engagement of Vacuum Actuator -OPTIONAL

To secure axle shaft engagement permanently you may elect to complete the following.

Step 1 - Remove vacuum actuator from front axle assembly.

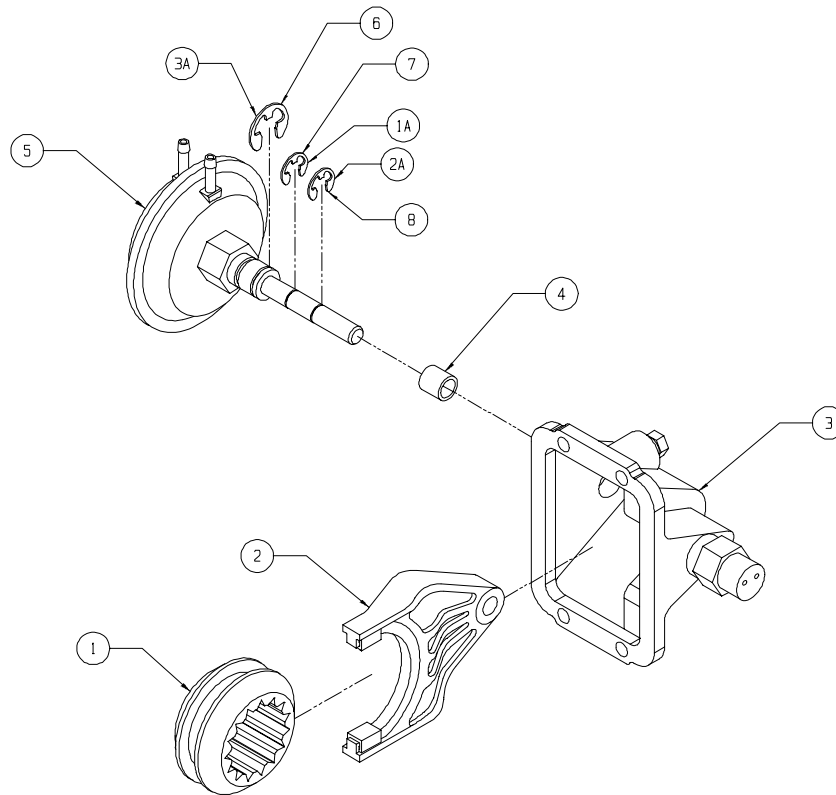


Figure - 8

*Step 2 - Remove 3 "e-clips" from inside actuator housing as shown in Figure 8.
(See Flag 1A, 2A and 3A)*

Step 3 - Slide out vacuum actuator form actuator housing. (Figure 8, Flag5)

Step 4 - Slide brass spacer on to vacuum actuator piston. (Figure 8, Flag 4)

Step 5 - Insert shift fork arm into housing being sure that arm is facing in the correct position. (Figure 8, Flag 2)

Step 6 - Insert vacuum actuator with brass spacer into housing being sure to slide through shift fork. (Figure 8, Flag 4 and 5)

Step 7 - Snap in large "e-clip" on to vacuum actuator housing in area indicated. (Figure 8, Flag 3a)

Step 8 - Extend vacuum actuator piston so that it is fully extended.

Step 9 - Slide brass spacer so that it is against vacuum actuator body.

Step 10 - Insert 1 small "e-clip" so that brass collar is "trapped" between both the vacuum housing and the "e-clip".

Step 11 - Slide engagement arm so that it is against 1st small "e-clip".

Step 12 - Insert 2nd small "e-clip" so that engagement arm is "trapped" between both "e-clips".

Step 13 - Make sure all 3 "e-clips" are seated firmly to prevent them from falling off.

Step 14 - Attach gear engagement ring onto spline in axle.

Step 15 - Reattach assembled locker housing to axle housing being sure that engagement arm is seated firmly onto engagement ring.

Step 16 - Firmly secure mounting bolts to axle housing per Jeep maintenance manual torque specifications..

WARN FRONT HUB CONVERSION PRODUCTS

LIMITED LIFETIME WARRANTY FOR MECHANICAL COMPONENTS

Warn Industries, Inc. (Warn) warrants that the mechanical components of the Products covered by this Warranty as specified below will be free of factory defects in material and workmanship for the lifetime of the Product. This Warranty applies only to the original purchaser of the Products. To obtain any warranty coverage, it is absolutely necessary that you present proof of purchase and warranty period verification acceptable to Warn, such as a copy of the purchase receipt. If you discover a covered defect, Warn will, at its option, repair, replace or refund the purchase price of the Product or component parts at no charge to you, provided you return it during the applicable warranty period, transportation charges prepaid, to Warn Industries' Service Department or Factory Authorizes Servicing Distributor. (You can obtain additional information from Warn directly at the address printed below.) Please attach your name, address, telephone number, a description of the problem and a copy of the bill of sale bearing the appropriate Warn serial numbers as proof of original retail purchase, to each product returned for warranty service. Exclusions from this warranty are those specified below.

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Warn reserves the right to change Product design without notice or obligation to modify previously manufactured products.

Warranty inquires and Products returned for warranty service should be sent to:

WARN INDUSTRIES
Customer Service Department
12900 SE Capps Road
Clackamas, OR 97015
1-800-543-WARN

Exclusions to this Warranty

<u>Products covered by this Warranty</u> Front Hub Conversion Kits	<u>Exclusions to this Warranty</u> Finish, u-joints, bearings and seals
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